AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) In a code generation computing system that includes one or more processors to execute computer-executable instructions in system memory, a method for ~~the code generation computing system to~~ automatically generat~~ing~~e executable code ~~that tests~~ configured to simulate a message exchange pattern ~~capabilities of a test computing system to use a message exchange pattern application to engage in message transactions following a message exchange pattern~~, the method comprising the following:

an act of accessing a message exchange pattern definition for the message exchange pattern, the message exchange pattern definition ~~that~~ defining~~es~~:

which of a first message exchange pattern application and a second message exchange pattern application are to send which message at any given point in the message exchange pattern;

-a plurality of states of the message exchange pattern~~;~~;

one or more state transitions between the plurality of states; and

~~the message exchange pattern definition further having~~ for each of the plurality of states:

valid message types for the state;

~~, an indication of~~ one or more valid messages types that may be transmitted when the message exchange pattern is in the state;~~conform to the message exchange pattern for that state,~~

one or more valid message types that may be received when the message exchange pattern is in the state; and

an indication of which ~~computing system may transmit each valid message given the state, and a~~ state transitions ~~indication for at least some of the valid messages identifying one of the plurality of states to transition to~~ should ~~the valid message~~ occur given a certain valid message type;

~~an act of accessing a state in which the message exchange pattern definition allows a valid transmission message to be transmitted by the test computing system for the accessed state;~~

~~based on the accessed state, automatically performing the acts of:~~

an act of automatically generating executable message exchange pattern simulation code, based on the message exchange pattern definition, for simulating the state transitions of the message exchange pattern, the generated executable message exchange pattern simulation code representing a stand alone computer program that can be executed at a computer system to test the message exchange pattern definition without communicating with any message exchange pattern applications, including:

for each of the plurality of states that permits valid messages to be transmitted:

automatically generating executable code ~~that at least~~ to simulates transmission of ~~the~~ a valid ~~transmission~~ message between the first message exchange pattern application and second message exchange pattern application; and

automatically generating executable code to simulate a corresponding state ~~transitioning to other code that represents the state to~~ transition in response to the simulated transmission of the valid transmission message; and

~~an act of accessing at least one other state in which the message exchange pattern definition allows a valid receipt message to be received; and~~

~~based on the at least one other accessed state, automatically performing the acts of:~~

for each of the plurality of states that permits valid messages to be received:

automatically generating executable code to ~~that~~ simulates ~~the receipt~~ reception of ~~the~~ a valid ~~receipt~~ message between the first message exchange pattern application and second message exchange pattern application; and

automatically generating executable code to simulate a corresponding state ~~transitioning to other code that represents the state to~~ transition ~~to~~ in response to the simulated reception of the valid message.

2. (Original)   A method in accordance with Claim 1, wherein the message exchange pattern definition indicates that when in a particular state, any one of a plurality of valid transmission messages may be transmitted.

3. (Previously Presented)   A method in accordance with Claim 2, wherein the message exchange pattern definition indicates for each of the plurality of valid transmission messages for the particular state, a percentage chance that each of the plurality of valid transmission messages will be transmitted given the particular state, wherein the method further comprises automatically generating code to at least simulate each of the plurality of valid transmission messages and performing appropriate state transitions given the transmission.

4. (Previously Presented)   A method in accordance with Claim 3, further comprising the following:

an act of generating code that generates a pseudo-random value and selects one of the plurality of valid transmission messages to transmit based on the pseudo-random value and on the percentage chance.

5. (Original)   A method in accordance with Claim 1, further comprising the following for at least one state:

an act of generating code that at least simulates transmission of an invalid transmission message.

6. (Previously Presented)   A method in accordance with Claim 5, wherein there is also indicated a percentage chance that the invalid transmission messages will be transmitted given the particular state, wherein the method further comprises an act of generating code that generates a pseudo-random value and selects one of the invalid transmission message to transmit based on the pseudo-random value and on the percentage chance.

7. (Original)   A method in accordance with Claim 1, wherein the message exchange pattern definition indicates that when in a particular state, any one of a plurality of valid receipt messages may be received.

8. (Previously Presented)   A method in accordance with Claim 7, wherein the message exchange pattern definition indicates for each of the plurality of valid receipt messages for the particular state, a percentage chance that each of the plurality of valid receipt messages will be received given the particular state, wherein the method further comprises automatically generating code to simulate each of the plurality of valid receipt messages and performing appropriate state transitions given the transmission.

9. (Previously Presented)   A method in accordance with Claim 8, further comprising the following:

an act of generating code that generates a pseudo-random value and selects one of the plurality of valid receipt messages to function as a simulated receipt based on the pseudo-random value and on the percentage chance.

10. (Original) A method in accordance with Claim 1, further comprising the following for at least one state:

an act of generating code that simulates receipt of an invalid transmission message.

11. (Previously Presented)   A method in accordance with Claim 10, wherein there is also indicated a percentage chance that the invalid receipt message will be received given the particular state, wherein the method further comprises an act of generating code that generates a pseudo-random value and selects one of the invalid received message to function as a simulated receipt based on the pseudo-random value and on the percentage chance.

12. (Original) A method in accordance with Claim 1, wherein the message exchange pattern definition is defined using the Web Services Description Language (WSDL) standard.

13. (Original) A method in accordance with Claim 1, wherein the message exchange pattern definition further defines timing policies to be imposed when in a particular state.

14. (Currently Amended)   A computer program product for use in a code generation computing system that includes one or more processors to execute computer-executable instructions in system memory, the computer program product for performing a method for ~~the code generation computing system to~~ automatically generat~~ing~~e executable code ~~that tests~~ configured to simulate a message exchange pattern ~~capabilities of a test computing system to use a message exchange pattern application to engage in message transactions following a message exchange pattern~~, the computer program product comprising one of more ~~recordable-type~~ computer-storage ~~readable~~ media that, when executed by one or more processors of the code generation computing system, causes the code generation computing system to perform the method, the method comprising the following:

an act of accessing a message exchange pattern definition for the message exchange pattern, the message exchange pattern definition ~~that~~ defin~~ing~~es:

which of a first message exchange pattern application and a second message exchange pattern application are to send which message at any given point in the message exchange pattern;

a plurality of states of the message exchange pattern~~,~~;

one or more state transitions between the plurality of states; and

~~the message exchange pattern definition further having~~ for each of the plurality of states~~,~~:

valid message types for the states;

~~an indication of~~ one or more valid messages types that may be transmitted when the message exchange patter is in the state;~~conform to the message exchange pattern for that state,~~

one or more valid message types that may be received when the message exchange pattern is in the state; and

an indication of which ~~computing system may transmit each valid message given the state, and~~ a state transitions ~~indication for at least some of the valid messages identifying one of the plurality of states to transition to~~ should ~~the valid message~~ occur given a certain valid message type;

~~an act of accessing a state in which the message exchange pattern definition allows a valid transmission message to be transmitted by the test computing system for the accessed state;~~

~~based on the accessed state, automatically performing the acts of:~~

an act of automatically generating executable message exchange pattern simulation code, based on the message exchange pattern definition, for simulating the state transitions of the message exchange pattern, the generated executable message exchange pattern simulation code representing a stand alone computer program that can be executed a computer system to test the message exchange pattern definition without communicating with any message pattern exchange pattern applications, including:

for each of the plurality of states that permits valid messages to be transmitted:

automatically generating executable code ~~that at least~~ to simulates transmission ~~of the~~ a valid ~~transmission~~ message between the first message exchange pattern application and second message exchange pattern application; and

automatically generating executable code to simulate a corresponding state ~~transitioning to other code that represents the state to~~ transition ~~to~~ in response to the simulated transmission of the valid transmission message; and

~~an act of accessing at least one other state in which the message exchange pattern definition allows a valid receipt message to be received; and~~

~~based on the at least one other accessed state, automatically performing the acts of:~~

for each of the plurality of states that permits valid messages to be received:

automatically generating executable code to ~~that~~ simulates ~~the receipt~~ reception of ~~the~~ a valid ~~receipt~~ message between the first message exchange pattern application and second message exchange pattern application; and

automatically generating executable code to simulate a corresponding state ~~transitioning to other code that represents the state to~~ transition ~~to~~ in response to the simulated reception of the valid message.

15. (Original) A computer program product in accordance with Claim 14, wherein the message exchange pattern definition indicates that when in a particular state, any one of a plurality of valid transmission messages may be transmitted.

16. (Previously Presented) A computer program product in accordance with Claim 15, wherein the message exchange pattern definition indicates for each of the plurality of valid transmission messages for the particular state, a percentage chance that each of the plurality of valid transmission messages will be transmitted given the particular state, wherein the method further comprises automatically generating code to at least simulate each of the plurality of valid transmission messages and performing appropriate state transitions given the transmission.

17. (Previously Presented) A computer program product in accordance with Claim 16, further comprising the following:

an act of generating code that generates a pseudo-random value and selects one of the plurality of valid transmission messages to transmit based on the pseudo-random value and on the percentage chance.

18. (Original) A computer program product in accordance with Claim 14, further comprising the following for at least one state:

an act of generating code that at least simulates transmission of an invalid transmission message.

19. (Previously Presented) A computer program product in accordance with Claim 18, wherein there is also indicated a percentage chance that the invalid transmission messages will be transmitted given the particular state, wherein the method further comprises an act of generating code that generates a pseudo-random value and selects one of the invalid transmission message to transmit based on the pseudo-random value and on the percentage chance.

20. (Original) A computer program product in accordance with Claim 14, wherein the message exchange pattern definition indicates that when in a particular state, any one of a plurality of valid receipt messages may be received.

21. (Previously Presented)   A computer program product in accordance with Claim 20, wherein the message exchange pattern definition indicates for each of the plurality of valid receipt messages for the particular state, a percentage chance that each of the plurality of valid receipt messages will be received given the particular state, wherein the method further comprises automatically generating code to simulate each of the plurality of valid receipt messages and performing appropriate state transitions given the transmission.

22. (Previously Presented)   A computer program product in accordance with Claim 21, further comprising the following:

an act of generating code that generates a pseudo-random value and selects one of the plurality of valid receipt messages to function as a simulated receipt based on the pseudo-random value and on the percentage chance.

23. (Original) A computer program product in accordance with Claim 14, further comprising the following for at least one state:

an act of generating code that simulates receipt of an invalid transmission message.

24. (Previously Presented)   A computer program product in accordance with Claim 23, wherein there is also indicated a percentage chance that the invalid receipt message will be received given the particular state, wherein the method further comprises an act of generating code that generates a pseudo-random value and selects one of the invalid received message to function as a simulated receipt based on the pseudo-random value and on the percentage chance.

25. (Original) A computer program product in accordance with Claim 14, wherein the message exchange pattern definition is defined using the Web Services Description Language (WSDL) standard.

26. (Original) A computer program product in accordance with Claim 14, wherein the message exchange pattern definition further defines timing policies to be imposed when in a particular state.

27. (Original) A computer program product in accordance with Claim 14, wherein the one or more computer-readable media are physical media.

27. (Cancelled).

28. (Original) A computer program product in accordance with Claim 27, wherein the one or more computer-readable media includes system memory.

29. (Original) A computer program product in accordance with Claim 27, wherein the one or more computer-readable media includes persistent memory.

30. (Original) A computer program product in accordance with Claim 29, wherein the persistent memory is a magnetic disk.

Claims 31 and 32. (Cancelled).